REMARKS

Claims 1-18 are pending in the application. No claims have been amended or added.

Applicants believe that this response addresses the Examiner's rejection and that any changes do not introduce new matter into the specification, limit the scope of the claims or result in any prosecution history estoppel.

Claim Discussion – 35 USC S. 112

The Examiner rejected claims 1-18 under 35 USC S. 112, 1st paragraph, as failing to comply with the enablement requirement. In particular, Applicant has not provided sufficient detail in the disclosure such that one of ordinary skill in the art would have been able to make and/or us the invention without undue experimentation. In particular, Applicant has not taught how SMI would be generated and used in a system under ACPI control.

Applicants respectfully note that the specification provides ample teachings of how SMI would be generated and used in a system under ACPI control. For example, page 4, lines 8-19:

> *Embodiments of the present invention provide for generation of SMI from ACPI ASL control method code to execute complex tasks including, but not limited to, transferring or searching through large amounts of data dynamically. Instead of executing certain tasks using limited ASL functionality, a SMI is generated in an ASL code execution path to enable usage of a flexible native central processor unit (CPU) instruction set accessible to a system management mode (SMM) handler. In particular, an operation region is defined for a SMI generation I/O register. The Pre-OS software configures the chipset to generate an SMI when an I/O access occurs to this particular address location defined through the ACPI Operation Region. An ACPI control method execution by any OS entity accesses the SMI generation I/O register to generate an SMI during ASL code execution when a predefined complex task is encountered, thus enabling the SMI handler code to advantageously execute the complex task.*

Also, page 5, line 25 to page 6, line 16:

> Complex tasks suitable for the SMI handler include, but are not limited to, handling and transferring large amounts of data that has to be gathered dynamically during runtime, saving and restoring devices coming out of suspend state, determining device standards, accessing features not accessible to the ASL code and so forth. Complex tasks requiring transfer or search of large bodies of data are particularly problematic, since the AML access to memory, I/O and PCI configuration space is either static or else the capabilities provided for

dynamic values are so limited as to be largely useless. This makes it difficult for code developers to develop optimal code that can execute fast and hence positively affect performance. In a typical implementation, ROM images need to be copied from a flash component to memory area. *A SMI is generated by the control code and a SMI handler correspondingly copies the flash component to the memory area. After the task is completed, control is transferred back to ASL code. One skilled in the art will recognize that embodiments of the present invention can be configured to allow the control method to generate an SMI interrupt and consequently enable SMI handler code to handle any kind of tasks, including those which may be handled readily by the ASL code as well.*

Referring to FIG. 1, ACPI table 118 is a collection of registers. The status registers are software readable by ACPI driver 110. These are also hardware readable in the context that the hardware can read the status bit in order to determine whether to generate a SMI. The base address of the task register and the lengths of the task blocks are all defined in ACPI table 118. In accordance with the ACPI specification, between zero and 255 task inputs can be implemented. The task status register, containing the task status bits, thus allows 255 tasks (i.e., status register values).

Furthermore, page 6, line 24 to page 7, line 12:

As shown in FIG. 2, when a complex task is encountered, the control method invokes a SMI from within ACPI code to handle operations in an optimal way (step 206). The chipset has a capability to generate an SMI based on accesses to predefined I/O address locations. The control method accesses the I/O address location that is programmed to trigger an SMI by using the chipset capability. An SMI is generated in the path of ASL code execution to enable usage of flexible native CPU instruction set within the SMI handler. A software SMI generation I/O register access is used to force an SMI occurrence within the ASL code execution path. In particular, an operation region is defined for the SMI I/O address that is being accessed. Once an operation region is defined for an I/O address, this newly defined entity can be accessed from within any of the control methods to generate an SMI.

The control method performs whatever action is appropriate for the task it handles. For example, if the task requires complex data handling and transfer, the control method acknowledges the task as one handled by a SMI handler. Thus, when ACPI driver 110 detects the assertion of an enable bit of the task register, it calls the appropriate driver 112 according to the particular task register pin asserted and according to ACPI table 118. *If the task register pin and table 118 indicate that the task should be handled by SMM code, an SMI is generated within the ACPI code and the SMI handler handles the task. The operating system sets the SMI enable bit for the device in the SMI generation I/O register when a complex task is detected.*

Moreover, page 8, line 7-30:

FIG. 3 illustrates a flow diagram of an embodiment 300 of a process for enabling a control method executed by the operating system under ACPI control to handle tasks, including complex tasks. The processor along with a memory includes a software routine that, during runtime, detects the assertion of a signal on the task register bit connected to the device. The assertion of the signal on the task register bit and then determination that the task comprises a complex task suitable for execution by the SMI handler, calls the software routine. The software routine obviates the need for the ACPI ASL code to execute complex instructions more suitable for the SMI handler to execute. Enable bits are read and written by software, and indicate to the system whether a task occurrence from a particular device is to be executed by the SMI handler instead.

Under OS runtime execution (step 302), ACPI driver 110 queues control methods to handle each task (step 304).

When a complex task is encountered (step 306), the control method invokes a SMI from within ACPI code to handle operations in an optimal way (step 308). The ACPI control method accesses the I/O address location that triggers an SMI signal to the processor by using the chipset capability. A SMI is generated in the path of ASL code execution to enable usage of flexible native CPU instruction set within the SMI handler.

The SMI handler then processes the complex task (step 310). Embodiments of the present invention thus identify and redirect complicated tasks in the ACPI ASL code to the SMM.

Upon completion of the complex task, the SMI handler executes a resume (RSM) instruction that restores processor's context from SMRAM, de-asserts the SMI signal, and then returns control to the control method under ACPI ASL code (steps 312, 314).

If a complex task is not detected (step 306), then processing is continued under ASL control (step 314) and a SMI is not generated.

In view of the foregoing, it is respectfully asserted that all of the claims pending in this patent application are in condition for allowance.

CONCLUSION

The required fee for a three month extension of time is enclosed. No additional fees are required for additional claims. Should it be determined that an additional fee is due under 37 CFR §§1.16 or 1.17, or any excess fee has been received, please charge that fee or credit the amount of overcharge to deposit account #02-2666.

If the Examiner has any questions, he is invited to contact the undersigned at (323) 654-8218. Reconsideration of this patent application and early allowance of all the claims is respectfully requested.

Respectfully submitted,
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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, Post Office Box 1450, Alexandria, Virginia 22313-1450 on January 13, 2006.

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Margaux Rodriguez *January 13, 2006*